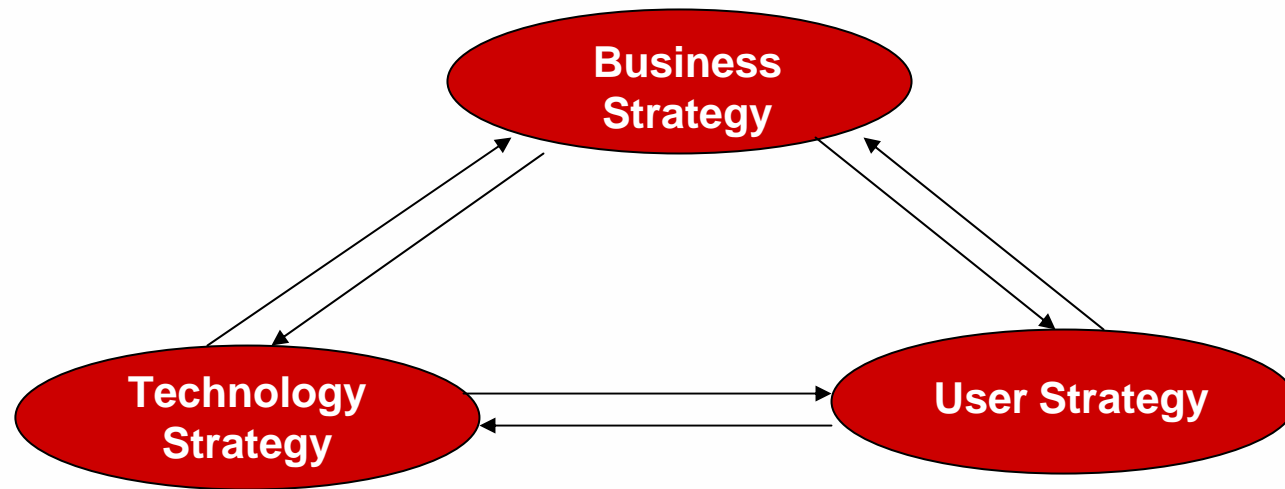




Understanding Usability Objectives September 2005

Three Parts of a Web Strategy



Three Parts of a Web Strategy

- **Business Strategy**
 - Business objectives for the system
 - Marketing/branding strategy
- **Technology Strategy**
 - Systems and support to technically implement business strategy
- **User Strategy**
 - Who, what, when, where and how users interact with the system

User Strategy

- ***Who*** uses the system
- ***What*** goals users want to achieve on the system
- ***When*** and ***how*** frequently users come to the site
- ***Where*** users go on the system and ***where*** users use the system

Usability Defined

- **ISO Definition:** The effectiveness, efficiency and satisfaction with which specified users can achieve specified goals within a system.

User Strategy

- Usability & interaction design activities drive user strategy
- Common usability activities
 - Analysis
 - *User & Task Analysis*
 - Design
 - *Conceptual and detail design*
 - *Site structures, high level navigation*
 - *Wireframes*
 - Evaluation
 - *Expert review*
 - *Usability testing*
 - Iteration

User Strategy

- **Understand the business goals**
- **Understand the technical strategy**
- **Understand the tool type:**
 - Client-server applications
 - Information-based sites
 - Game sites
 - Shopping sites
 - Community sites
 - Web applications
- **Understand the usability objectives for the tool**

Web Applications Need a Strong User Focus

- **One-to-One** – A unique session for each user
- **Data Transformation** – Users have the ability to manipulate, change and save data, permanently
- **Task Based** – Web applications facilitate task completion. Users arrive with specific goals, tasks and expectations in mind; the motivations for using a web application are explicit and precise.
- **Transparent** – Web application design succeeds not when it draws attention to itself but when it recedes into the background; requiring the design to be fundamentally natural to both the user and the medium.

Web Applications Need a Strong User Focus (cont.)

- **User Focused** -- The design should play a subservient role to the user's work.
- **Informative** -- Web applications have to provide users with various milestones informing them when tasks are complete; they must provide feedback.

Usability Objectives

- **Learnability**
- **Efficiency**
- **Effectiveness**
- **Memorability**
- **Error Handling & Recovery**
- **Satisfaction**
- **Flexibility**
- **Tailorability**

Usability Objectives

- **Learnability** – Users are able to learn the system within an acceptable timeframe and gain knowledge about deeper functionality over time
- **Efficiency** – The resources consumed to achieve those goals are at an acceptable and accurate level
- **Effectiveness** – Users achieve the *right* goals they set out to achieve in the system
- **Memorability** – Users can return from a break and still know where they are in the system and how to use it
- **Error Handling & Recovery** – The system limits the errors a user encounters and helps them recover from them when they occur

Usability Objectives (cont.)

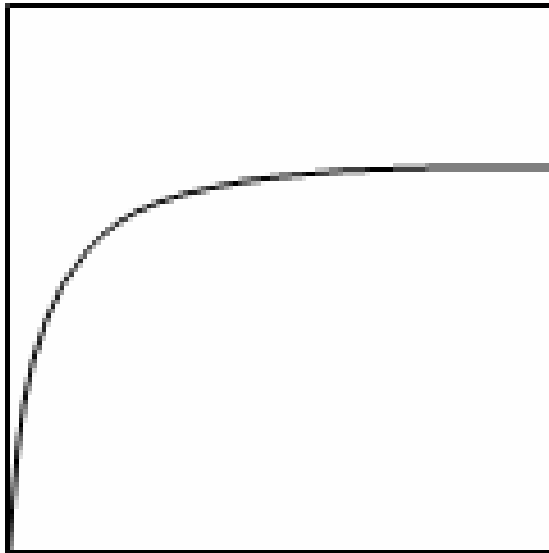
- **Engaging** – Users feel positive about the system; the system draws users into it
- **Flexibility** – Sites/groups have the ability to customize the system (within established constraints) to accommodate differences
- **Tailorability** – Users have the ability to customize the user interface to accommodate their specific work responsibilities and priorities

What makes a system learnable?

- **UI elements that support learnability**
 - Leverage users' existing knowledge of the web (linking, bookmarking, navigation interaction)
 - Standard interaction patterns
 - Standard user interface conventions & standards
 - Familiar terminology
 - Familiar work flows
- **Learnability is important for:**
 - Systems that support high turnover positions where people need to get up to speed quickly (Call Centers, Teller systems, Point of sale systems)
 - Systems that include low-frequency/high criticality (Course Management Systems) tasks
 - Limited training resources (time and budget)

Learnability

- Evaluating learnability

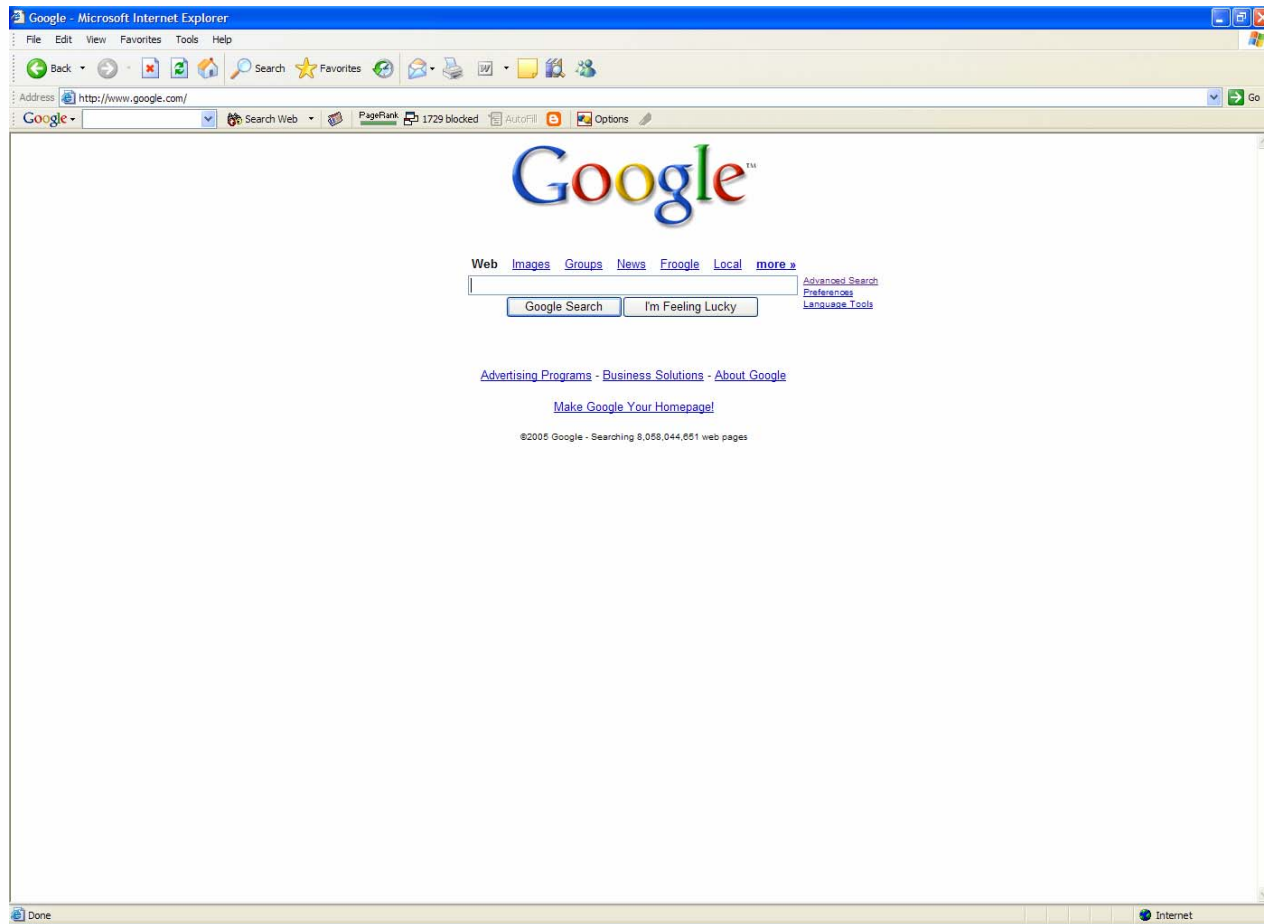


Novice Users – Can the novice transfer skills?

Early Users – Can the user learn the system quickly?

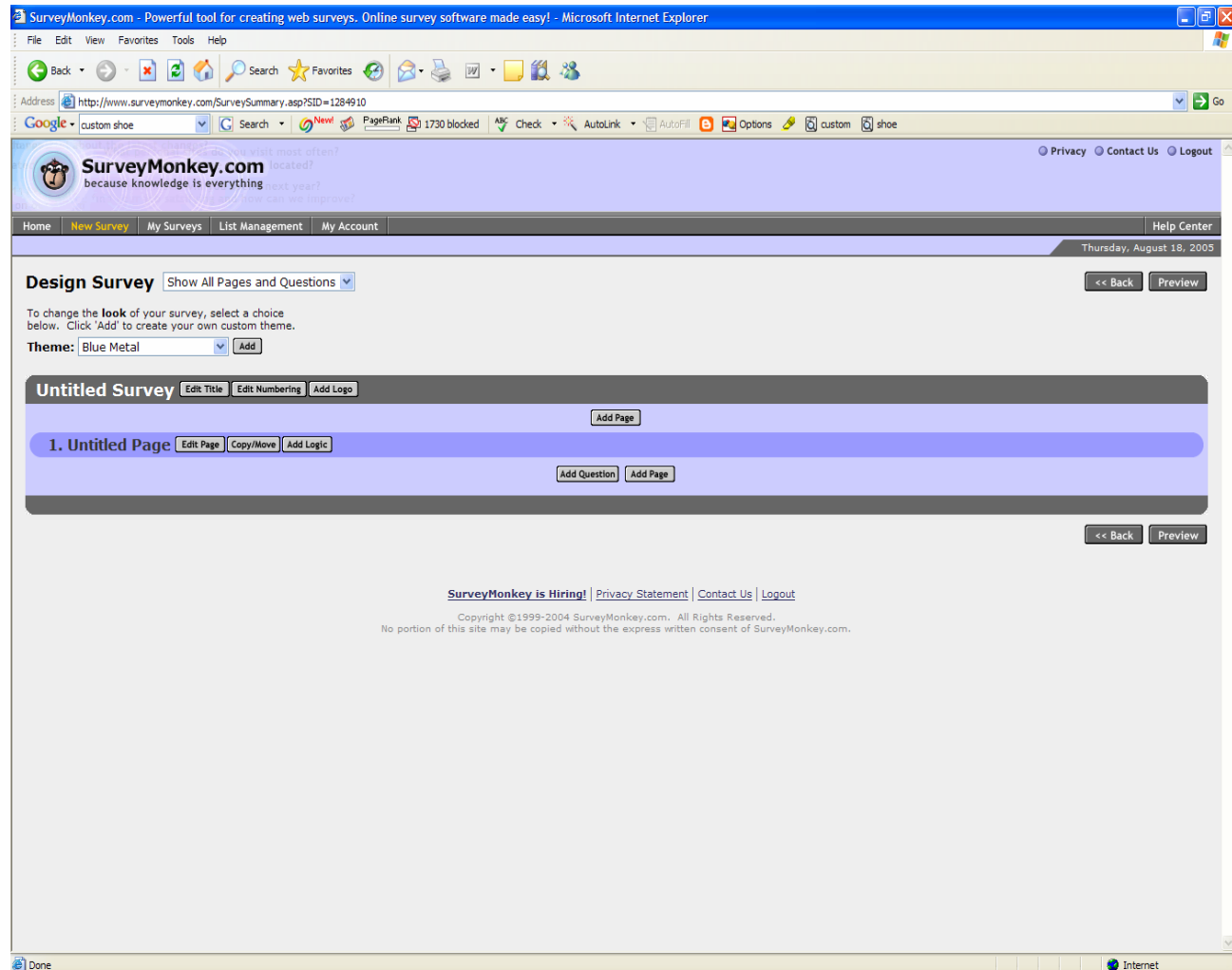
Experienced Users – Can users use the system efficiently?

Learnability



Learnability

- Market research web application
- Create, execute & analyze complex surveys with no training or support



What makes a system efficient?

■ UI elements that support efficiency

- Enter once, use everywhere
- Good defaults
- Task flow matches workflow
- Persistent navigation
- Consistent design
- Maximized system resources
- What if users learned a few additional features?
 - *What's the best way to lead users to these new additional features? (Daily Tips? Routine training?)*

■ Evaluating efficiency

- What are the most frequent tasks?
- Can users efficiently and accurately perform the most frequent tasks?
- Are there repeated errors where even experts remain confused?

Efficiency

- **Efficiency is influenced by:**
 - System response time (both slow or fast)
 - Amount of information a user has to read, enter or re-enter
 - The number of menu items, dialog boxes, pages, etc. users need to navigate
 - Easy step-by-step routes to perform the task
 - Degree of cognitive load: The amount of thinking that a user has to focus on the system, versus on their work goal
- **Efficiency is important for:**
 - Systems that support high volume transactions
 - Systems that support tight turnaround timeframes
 - Systems with complex, multi-step processes (even if it's a perception of the need for speed)
 - Systems used to improve worker productivity

Efficiency



Kim:

Thank you for applying to WetFeet for the ASP Product Manager position. You are employed and are interested in scheduling a phone interview with you.

To schedule your personal phone interview time for this position please

<http://wfrdemo.wfre recruiter.com/ISM CISIntro.asp?inv=3A12B3B9-E522>.

After clicking on the link above you will be directed on how to proceed with your phone interview time. Please be sure to check your email inbox for confirmation of your interview time within 24 hours after scheduling. It will also be important to ensure that the phone number we have on file for you is correct. If you have any questions, please contact me directly by replying to this email. I look forward to your confirmation of your interest.

Sincerely,

Gary

- Applicant tracking system with email to “deep” link.
- May require login prior to displaying linked page.

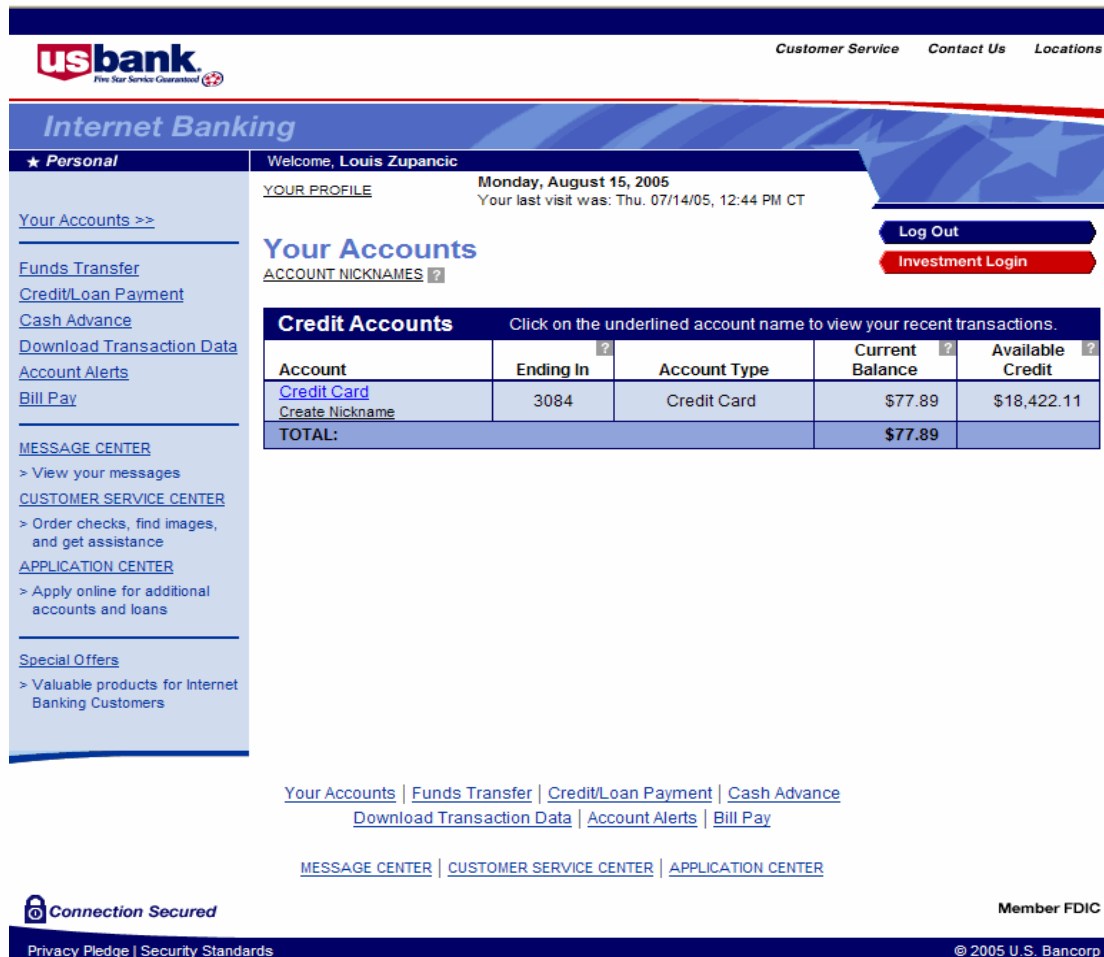
Efficiency

- Transaction processing system
- One-to-one relationship can promote efficiency by offering options appropriate to an individual user.

The screenshot displays the US Bank Internet Banking interface for user Louis Zupancic. The page is titled "Internet Banking" and shows the user's profile and the date Monday, August 15, 2005. The main content area is titled "Payment from an External Account" and shows "Request a Payment: Step 2 of 4". The form includes fields for "To this Account" (Credit Card 3084), "From this External Payment Account" (a dropdown menu), and "Payment Amount" (radio buttons for "Next Minimum Payment: \$0.00", "Statement Balance: \$802.61", "Outstanding Balance: \$77.89", and "Other Amount: \$"). Navigation buttons "Back", "Cancel", and "Next" are at the bottom of the form. The left sidebar contains links for "Your Accounts >>", "Funds Transfer", "Credit/Loan Payment", "Cash Advance", "Download Transaction Data", "Account Alerts", "Bill Pay", "MESSAGE CENTER", "CUSTOMER SERVICE CENTER", "APPLICATION CENTER", and "Special Offers". The footer includes "Connection Secured", "Privacy Pledge | Security Standards", "Member FDIC", and "© 2005 U.S. Bancorp".

Efficiency

- Summary helps support efficiency by allowing users to link directly to specific information



usbank Five Star Service Guaranteed

Customer Service Contact Us Locations

Internet Banking

★ Personal Welcome, Louis Zupancic

[YOUR PROFILE](#) Monday, August 15, 2005
Your last visit was: Thu. 07/14/05, 12:44 PM CT

[Log Out](#)
[Investment Login](#)

Your Accounts

[ACCOUNT NICKNAMES](#) ?

Credit Accounts Click on the underlined account name to view your recent transactions.				
Account	Ending In	Account Type	Current Balance	Available Credit
Credit Card	3084	Credit Card	\$77.89	\$18,422.11
Create Nickname				
TOTAL:			\$77.89	

[Your Accounts >>](#)

[Funds Transfer](#)
[Credit/Loan Payment](#)
[Cash Advance](#)
[Download Transaction Data](#)
[Account Alerts](#)
[Bill Pay](#)

MESSAGE CENTER
> View your messages


CUSTOMER SERVICE CENTER
> Order checks, find images, and get assistance

APPLICATION CENTER
> Apply online for additional accounts and loans

Special Offers
> Valuable products for Internet Banking Customers

[Your Accounts](#) | [Funds Transfer](#) | [Credit/Loan Payment](#) | [Cash Advance](#)
[Download Transaction Data](#) | [Account Alerts](#) | [Bill Pay](#)

[MESSAGE CENTER](#) | [CUSTOMER SERVICE CENTER](#) | [APPLICATION CENTER](#)

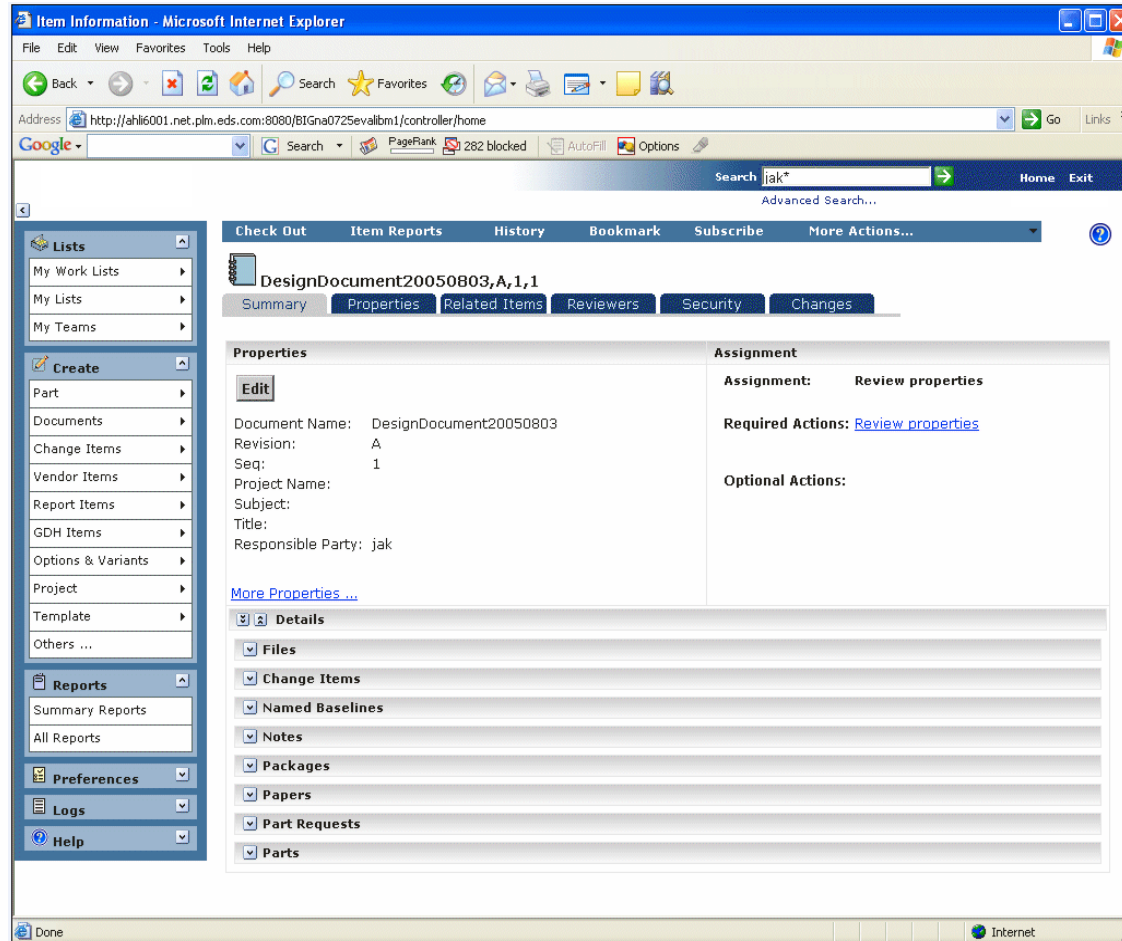
 Connection Secured

Member FDIC

Privacy Pledge | Security Standards

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Efficiency



- Product data management system
- Summary view
- Tabbed detail view
- Persistent left-hand navigation
- Actions on the object along the top
- Actions on a piece of data near the data
- Simple search

Efficiency

- Product data management system
- Users can take action on one or more items directly from search results
- Table provides adequate information to help user make decisions

Search Results - Microsoft Internet Explorer

Address: <http://ahli6001.net.plm.eds.com:8080/BIGna0725evalbm1/controller/home>

Search: Go

TEAMCENTER

Open Expand Check Out History Submit More Actions...

Search Results

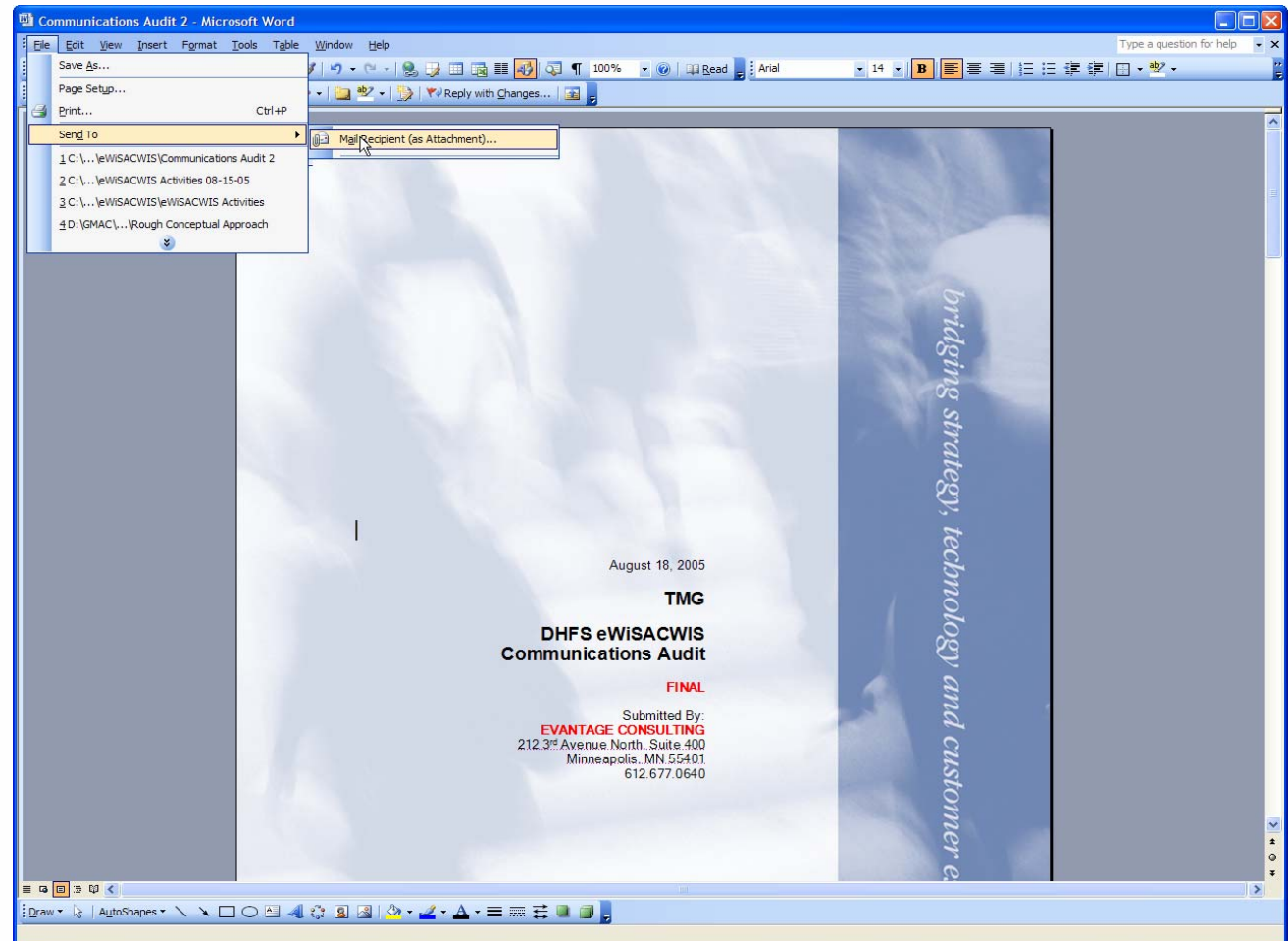
Select one item. Click Expand to see the relationships on an item.

Name	Class	Life Cycle State	Project Name	Superseded
Assembly1111.A.1.1	Component	Working		False
copy 1 of qual doc.A.1	Quality Document	Working		False
copy 2 of Qual Doc.A.1	Quality Document	Working		False
copy of qual doc - 4.A.1	Quality Document	Working		False
COST000001.A.1	Item Cost	Working		False
desdoc with attributes preference.A.1.1	Design Document	Working	Usability	False
DesignDocument20050803.A.1	Design Document	Working		False
ECN0001.A.1	Change Notice	Authoring		False
ECN0007.A.1	Change Notice	Authoring		False
ECR0002.A.1	Change Request	Authoring		False
ECR0003.A.1	Change Request	Authoring		False
ECR0004.A.1	Change Request	Authoring	Usability	False

Internet

Efficiency

- Ability to send document from within Word
- This same functionality has been used to store controlled documents in web applications



What makes a system effective?

- **UI elements to support effectiveness**
 - System supports business goals
 - Identify the “leaks?” (i.e., whiteout workarounds) and how can they be solved
- **Evaluating effectiveness**
 - Are business objectives being met?
 - Do users understand the process and how the system supports it?


Effectiveness

- Note the “pre-populated” field. Who is this effective for?

https://bills.householdaccount.com - GM Card Bill Pay - Make a standard online payment (step 1 - Micro...

Online Bill Pay Service

Powered By:


TRANSACTIONS GUARANTEED BY

[CheckFree Privacy Policy](#) | [FAQs](#) | [Sign Out](#)

[Make Payment](#) | [Payment Status](#) | [Bank Info](#)

Make a standard online payment (step 1 of 3)

- To **make a payment**, complete the fields below and click on the green Continue button.
- To **view, change or cancel a payment**, click on the Payment Status tab above.
- To **view or change your banking information**, click on the Bank Info tab above.
- To **make a payment for a different credit card**, [click here](#).

Current Balance	\$ 1105.89	
Amount You'd Like to Pay	\$ 0.00	The pre-populated amount is your current payment due.
Date You'd Like Your Payment to be Received	9/1/2005	<p>Will your payment arrive on time?</p> <ul style="list-style-type: none"> • Allow two business days, excluding weekends and holidays. See Payment Schedule. <p>Don't know your due date?</p> <ul style="list-style-type: none"> • Return to the Cardmember Account Overview screen, where you first logged in. Your due date is in the "Current Status" box. <p>Need to make a same-day payment?</p> <ul style="list-style-type: none"> • Return to the Cardmember Account Overview screen, where you first logged in, and click the Rush Payment button. <i>*There is a fee for Rush Payment Service.</i>

[Continue](#)

Done Internet

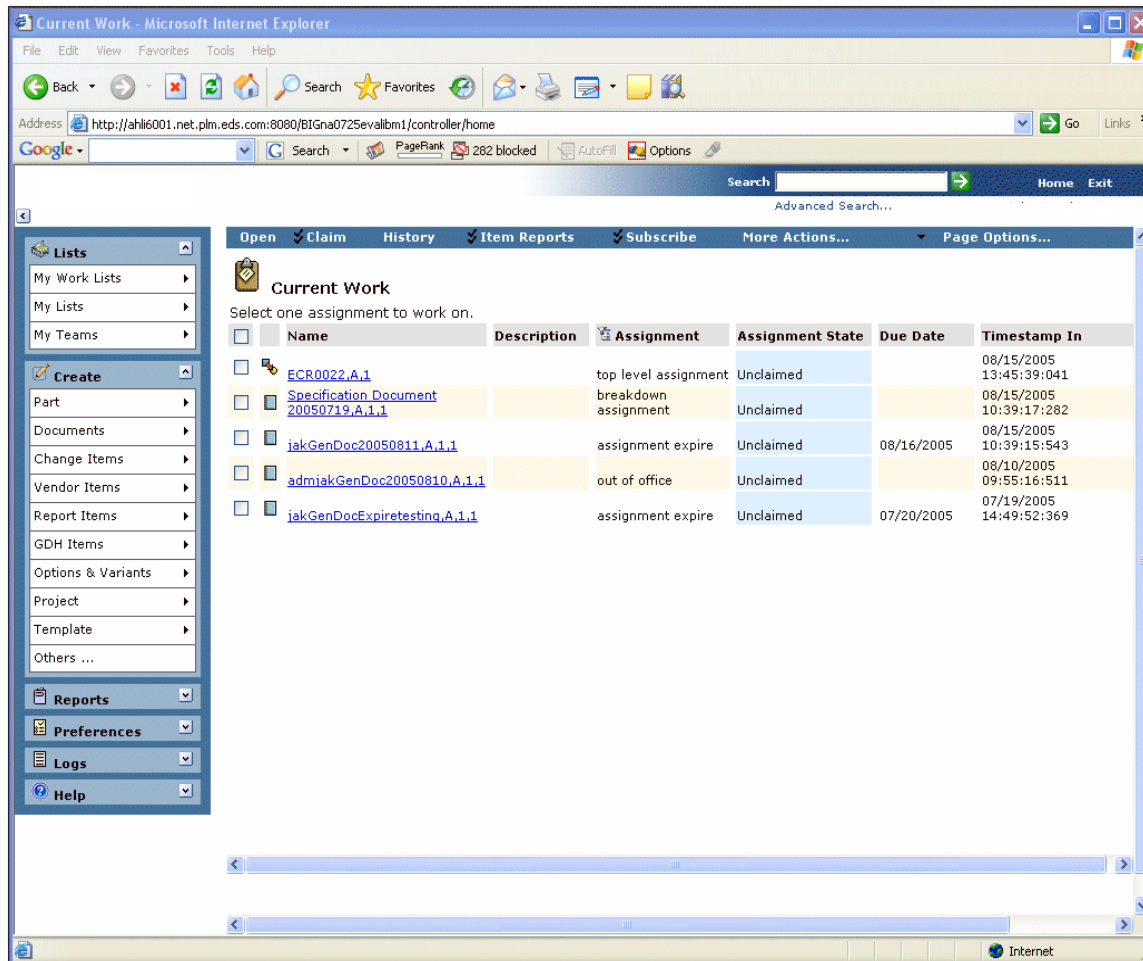
What makes a system memorable?

- **Users can return to the system after a break and still recall where they are and how to use it**
 - Measure memorability after an accepted level of training
 - Timeframe:
 - *Minutes for details like the meaning of icons and “place” within the system*
 - *Hours for a small but complex functions*
 - *Days or weeks for a full system*
 - Measure memorability for:
 - *Parts of your system that are important, but not used every day (e.g. monthly reporting functions, emergency handling functions)*
 - *Parts of the system that take a lot of work to learn but which are used occasionally*
 - *Parts of the system that intrinsically involve memory whenever they are used such as the meaning of icons*
 - Leverage system features to support memorability (i.e., tooltips, breadcrumb trail, visually distinct enabled/disabled controls)

Memorability

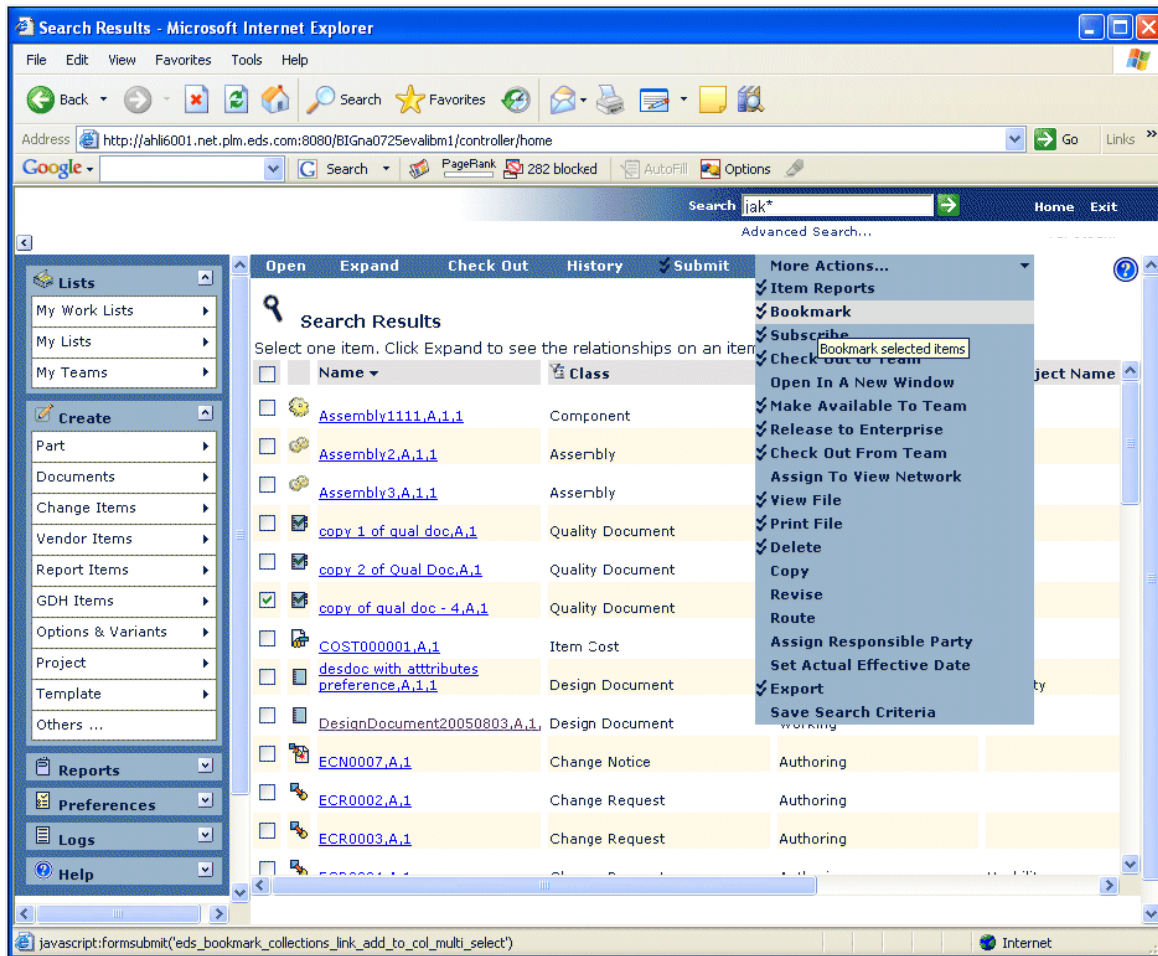
- **Memorability is important for:**
 - Systems that are used in work contexts where there are a lot of interruptions
 - Systems used in work contexts where workers must use multiple systems as part of their work responsibilities

Memorability



- Persistent left-hand navigation
- Actions are positioned in the same location throughout the application
- Actions that can be taken on one or more objects along the top
- Standard "L" layout

Memorability



- **Bookmarking** feature in large web application that has hard-to-locate information

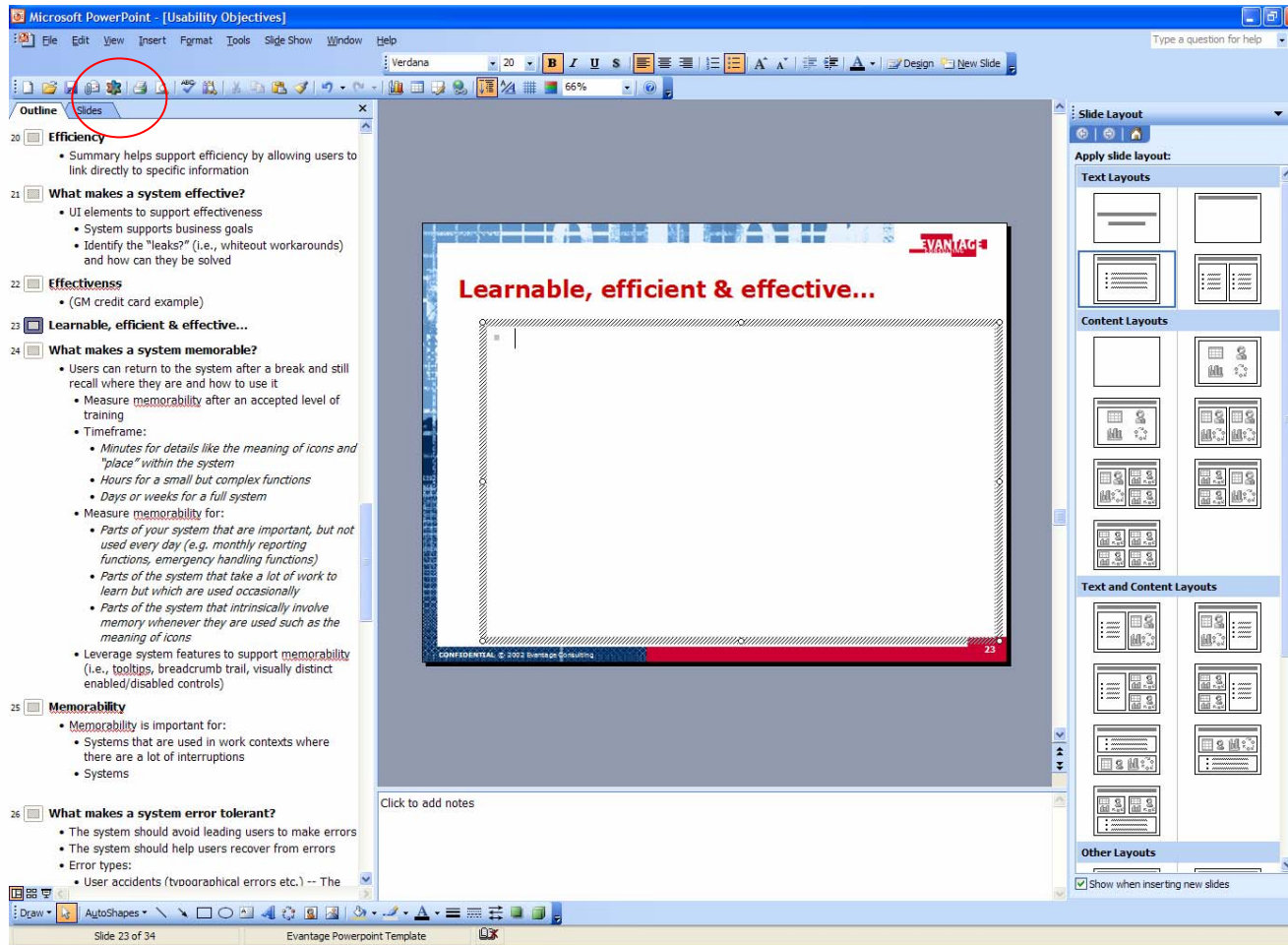
Memorability

- Search support
- Boolean searches without having to recall Boolean terms

Factiva Intelligent Indexing™ Select from the Intelligent Indexing categories below: ?

Company	Industry	Region	Subject	Look Up						
<ul style="list-style-type: none"> + Content Types - Corporate and Industrial News <ul style="list-style-type: none"> + Advertising + Bankruptcy + Capacity and Facilities + Contracts and Orders + Corporate Changes + Funding and Capital Information Technology + Labour and Personnel Issues 										
<table border="1" style="width: 100%;"> <thead> <tr> <th>and</th> <th>or</th> <th>not</th> </tr> </thead> <tbody> <tr> <td>ALCATEL NV Corporate Changes</td> <td></td> <td></td> </tr> </tbody> </table>					and	or	not	ALCATEL NV Corporate Changes		
and	or	not								
ALCATEL NV Corporate Changes										
<p>Preview: (ALCATEL NV) and Corporate Changes</p>										
<div> Remove Term Clear All Terms Add Terms to Search </div>										

Learnable, efficient, effective & memorable...



- Document-based user activity
- Functionality integrated directly into a familiar system

Learnable, efficient, effective & memorable...

The screenshot displays a presentation software window with a slide titled 'Efficiency' and 'What makes a system effective?'. A 'File, Print FedEx Kinko's' dialog box is open, showing options for printing and delivery. The 'Slide Layout' task pane is visible on the right, showing various layout templates.

Slide Content:

- Efficiency**
 - Summary helps support efficiency by allowing users to link directly to specific information
- What makes a system effective?**
 - UI elements to support effectiveness
 - System supports business goals
 - Identify the "leaks?" (i.e., whiteout workarounds and how can they be solved)
- Effectiveness**
 - (GM credit card example)
- Learnable, efficient & effective...**
- What makes a system memorable?**
 - Users can return to the system after a break and recall where they are and how to use it
 - Measure memorability after an accepted level of training
 - Timeframe:
 - Minutes for details like the meaning of icons "place" within the system
 - Hours for a small but complex functions
 - Days or weeks for a full system
 - Measure memorability for:
 - Parts of your system that are important, but used every day (e.g. monthly reporting functions, emergency handling functions)
 - Parts of the system that take a lot of work to learn but which are used occasionally
 - Parts of the system that intrinsically involve memory whenever they are used such as the meaning of icons
 - Leverage system features to support memorability (i.e., tooltips, breadcrumb trail, visually distinct enabled/disabled controls)
- Memorability**
 - Memorability is important for:
 - Systems that are used in work contexts where there are a lot of interruptions
 - Systems
- What makes a system error tolerant?**
 - The system should avoid leading users to make errors
 - The system should help users recover from errors
 - Error types:
 - User accidents (typographical errors etc.) -- The

File, Print FedEx Kinko's Dialog Box:

- Printing/Delivery**
 - Copies: Number of Copies: 1, Collate: ☒
 - Options: Color: ☒ Black & White, ☐ Color; Paper Type: Standard 20 lb, Standard weight, white copier paper.
 - Sides: ☒ Single, ☐ Double
 - Delivery: Select a delivery method: ☐ Pick up at FedEx Kinko's, ☐ Ship by FedEx
 - Estimated Printing Price: \$2.72, Estimated Binding Price: \$0.00, Estimated Production Price: \$2.72 (Excluding Shipping and Tax)

Slide Layout Task Pane:

- Apply slide layout:**
- Text Layouts:** (Icons for various text layouts)
- Content Layouts:** (Icons for various content layouts)
- Text and Content Layouts:** (Icons for combined text and content layouts)
- Other Layouts:** (Icons for other layouts)
- ☒ Show when inserting new slides

What makes a system error tolerant?

- **The system should avoid leading users to make errors**
- **The system should help users recover from errors**
- **Error types:**
 - User accidents (typographical errors etc.) -- The system cannot be blamed for most of these, but it should help the user recover
 - Errors caused by confusion -- The system should be designed to prevent this
- **When errors are discovered:**
 - Discovered by the user immediately
 - Discovered by the user after some delay
 - Discovered by the system and pointed out to the user
 - Not discovered by or made known to the user
- **Measuring error proneness:**
 - Number of errors per unit time (in different categories)
 - Total amount of time spent dealing with errors (vs. total time)
 - Total time spent recovering from errors after detection (vs. total error time or total time)

Error tolerance

- **Limit typing**
 - Enter once, use everywhere
 - Pre-fills
 - Copy/paste
- **Feedback**
 - Confirmations
 - *Opt-outs*
 - Information messages
 - Warning messages
 - The best error message is the one that is never displayed
 - Error message format
 - *What the user did that was wrong*
 - *How to fix it*
 - *Where to go for more help*

Error tolerance

- A user cannot move to the next step (the Next button is disabled) until an action is taken



Error tolerance

- Form
- Visual queues for required fields & formatting
- Length of form is specified
- Default selected, but to whose benefit?

1. Billing Info > 2. Shipping Info > 3. Payment Options

1. Billing Address (same as Credit Card billing address):

* Required entries

Customer #	<input type="text"/>
First Name: *	<input type="text"/> Middle Initial: <input type="text"/>
Last Name: *	<input type="text"/>
Address: *	<input type="text"/>
Address Line 2	<input type="text"/>
Address Line 3	<input type="text"/>
City: *	<input type="text"/>
State: *	<input type="text" value="Select a State"/> ▼
Zip Code: *	<input type="text"/>
Country:	USA
Day Phone *	<input type="text"/> - <input type="text"/> - <input type="text"/> Extension: <input type="text"/>
Evening Phone	<input type="text"/> - <input type="text"/> - <input type="text"/> Extension: <input type="text"/>
Fax Number	<input type="text"/> - <input type="text"/> - <input type="text"/>
Email Address: *	<input type="text"/>

We will confirm your order by email.

Sign-up for email notices of special sales and promotions. (We will never rent or share your email)

- ☒ Yes, Email promotions welcome.
- ☐ No, Email promotions not welcome.

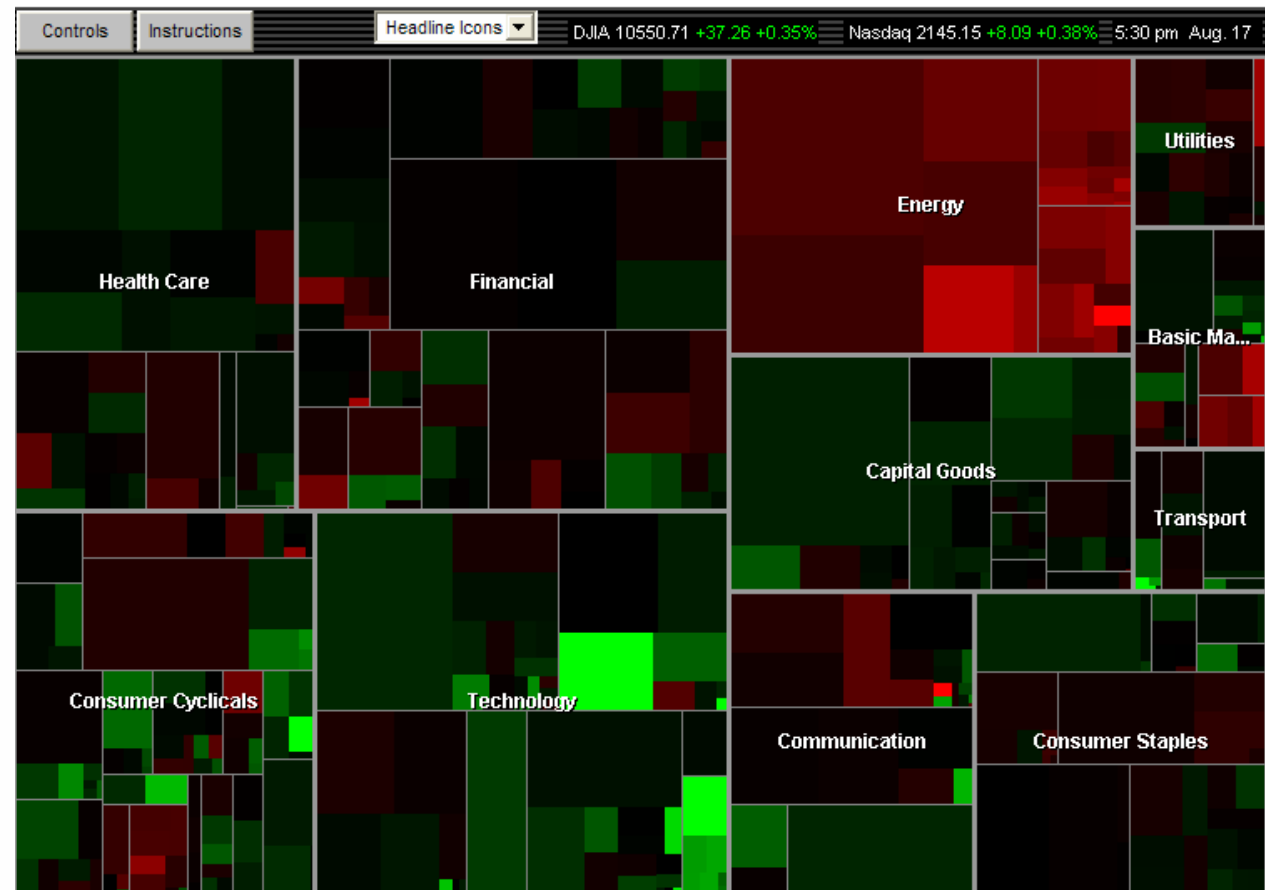
What makes a system engaging?

- **Draws the user into the work**
- **Helps the user work with confidence**
- **Presents information that is easily consumable**
- **Evaluating engagement**
 - Users will tell you when it's engaging
 - Stress levels
 - Lower help desk activity
 - Surveys
 - *System Usability Survey (SUS)*
 - *Likert scale*
- **Engagement is important for:**
 - Learning systems for children
 - Systems where the value proposition involves information delivery, such as investment sites
 - Systems used in mature and highly competitive markets

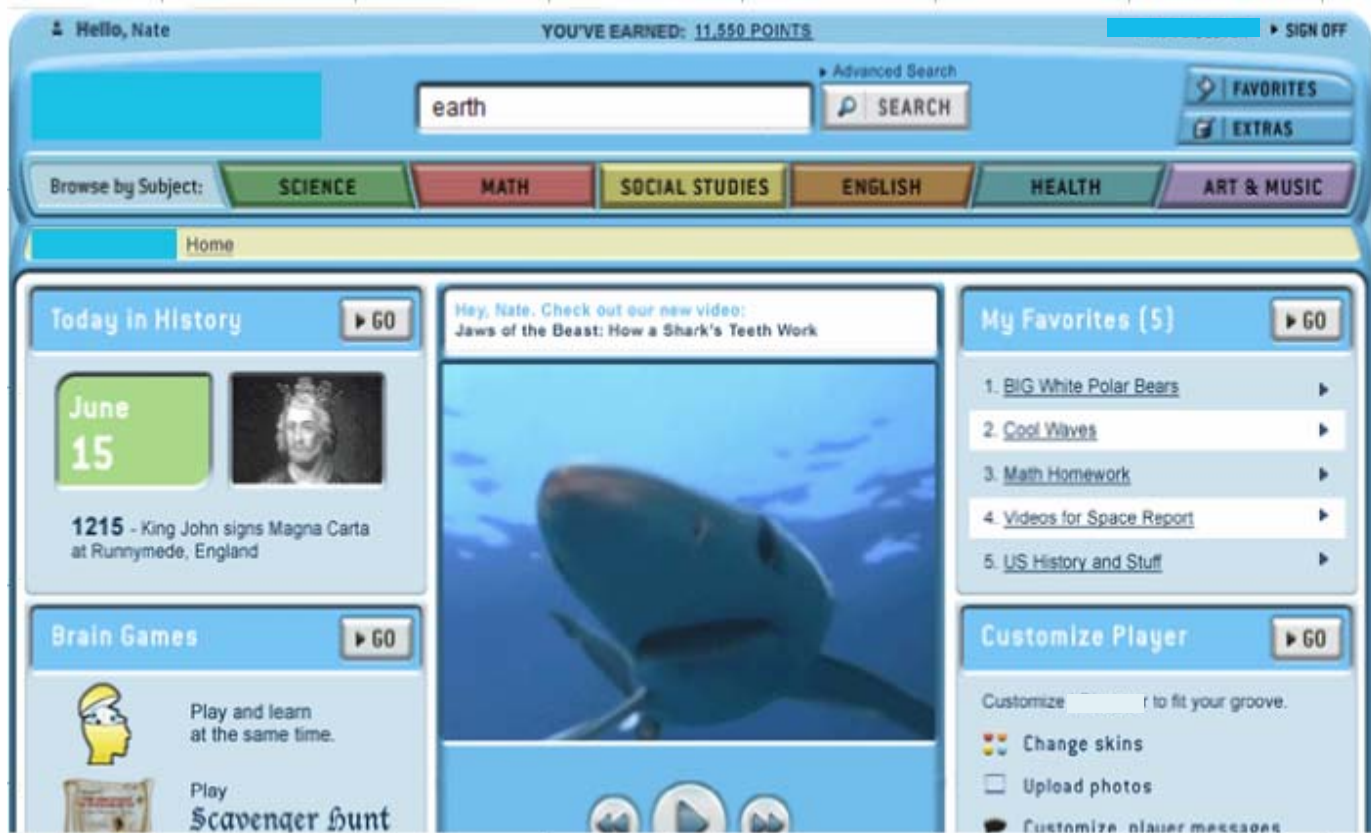
Engaging

- Fidelity's Map of the Market
- Complex information displayed in a single page

Map of the Market



Engaging

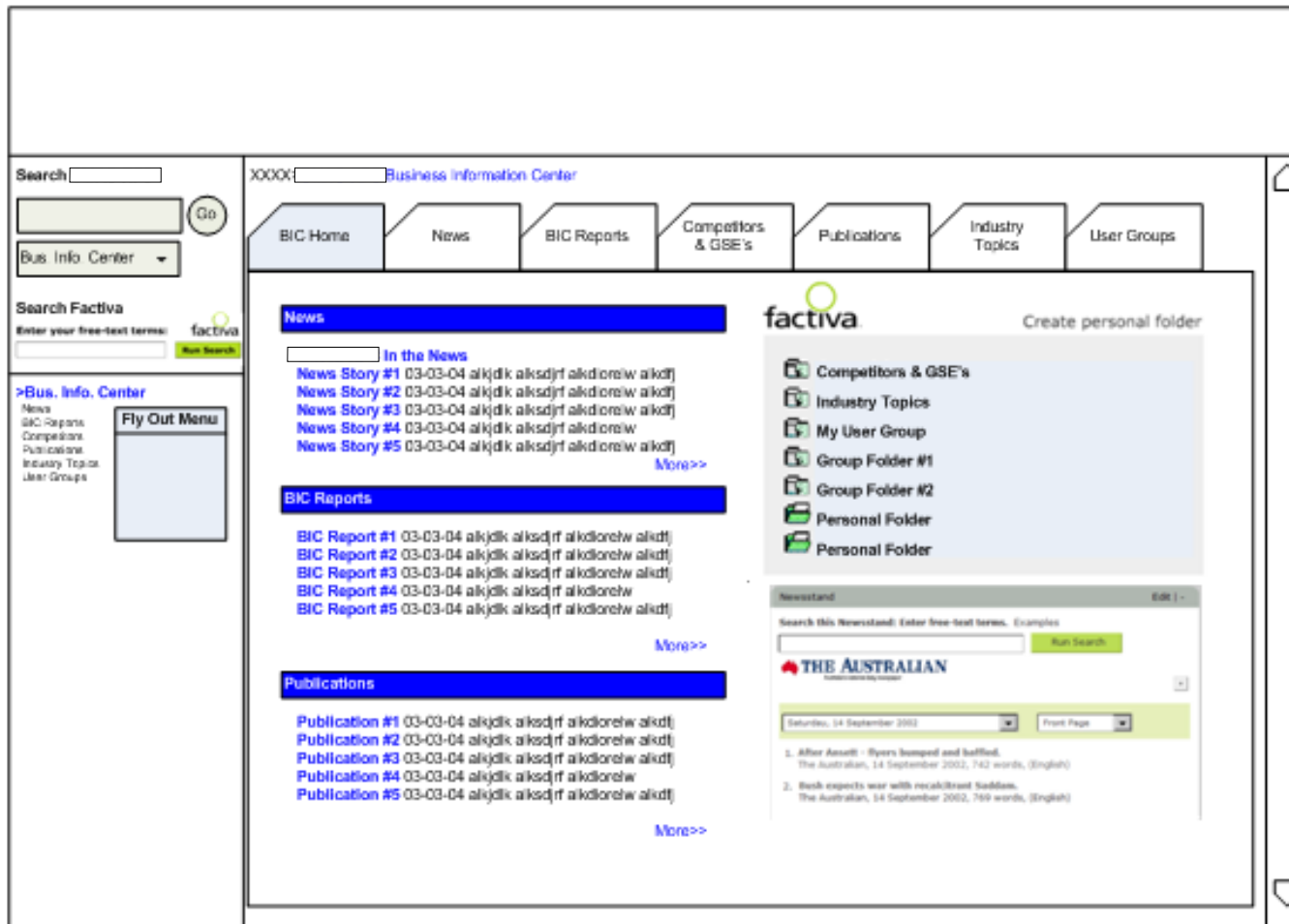


- Learning system for children

What makes a system flexible?

- **What makes a system flexible?**
 - The system can adapt to different situations
 - Templates
 - Style sheets
 - Lists (valid values lists/drop downs)
- **Evaluating flexibility**
 - Can the system be easily adapted to meet a variety of site-level needs within established constraints?
- **Flexibility is important for:**
 - Large systems with diverse customer bases
 - *Regional differences*
 - *Global differences*
 - *Regulatory differences*
 - *Industry differences*

Flexibility



- Business information center
- Portal integration
- Ability for users to create their own folders to organize information

Tailorability

- **What makes a system tailorable?**
 - Allow the user to modify the system to suit their work goals
- **Evaluating tailorability**
 - Can the user modify the system to meet their work goals
 - Do users become more productive?
- **Tailorability is important for:**
 - Highly complex systems
 - Systems with multiple, unique user groups
 - Systems where a user group only uses a portion of the system

Tailorability

My Yahoo! - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://my.yahoo.com/

Google Search 1729 blocked Check AutoLink AutoFill Options

MY YAHOO! Welcome, jebungum [Sign Out, My Account]

Yahoo! Mail More Yahoo!

verizon wireless **only \$49.99** **CAMERA PHONE** with Flash & Zoom **ONLINE INSTANT REBATE**

Category: **Web** Images Video Local News Shopping

Search: Yahoo! Search Advanced My Web

Thu, Aug 11, 04:07 pm

Add headlines from the **BBC** to My Yahoo!


My Page | Add New Page

3 Easy Ways to Make the Most of Your Page [close this message box](#)

1. Add content you care about - from baby blogs to big brands - over 300,000 sources.
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[Sign up for Yahoo! Mail](#), our free web-based email. Then check here to see the most recent email in your inbox.

Lead Photo [edit](#) [x](#)
 **Bush: Leaving Iraq Would Be a Bad Signal**
President Bush, joined at night by Secretary of State Condoleezza Rice, talks to reporters after meeting with his defense and foreign policy teams at his ranch in Crawford, Texas, Thursday, Aug. 11, 2005. The wide-ranging talks touched on violence in Iraq and standoffs with Iran and North Korea over their nuclear programs to anti-American sentiment abroad, especially in the Middle East. (AP Photo/J. Scott Applewhite)

AP: Top Stories [edit](#) [x](#)




- [Bush: Leaving Iraq Would Be a Bad Signal](#) - one hour ago
- [Cabbie Helps Capture Fugitive Couple](#) - 3 hours ago
- [Envoy: Iran Faces Sept. Deadline on Nukes](#) - 3 hours ago
- [Alleged al-Qaida Spiritual Leader Detained](#) - 2 hours ago
- [Study: Heavier Girls Hit Puberty Earlier](#) - 3 hours ago

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Weather [edit](#) [x](#)

[Knapp, WI](#) 60...74 F 
[Wilson, WI](#) 61...74 F 
[Boyceville, WI](#) 60...74 F 

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Admit it--TV is your secret lover. Indulge the passion with daily updates from this feed.
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August 2005

Su	Mo	Tu	We	Th	Fr	Sa
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

[Internet](#)

http://us.rd.yahoo.com/mymod/dpht/sty/http://story.news.yahoo.com/news?tmpl=story&cid=514&u=/ap/20050811/ap_on_go_pr_why/bush

In Summary...

- **User strategy is one of three elements that make up a Web Strategy**
 - Business
 - User strategy
 - Technology
- **Usability objectives are key to forming a sound user strategy**
 - Learnability
 - Efficiency
 - Effectiveness
 - Memorability
 - Error Handling & Recovery
 - Satisfaction
 - Flexibility
 - Tailorability

Discussion

- You can pick three usability objectives. Which will you pick?